

REMARKS

INTRODUCTION

In accordance with the foregoing, no claims have been canceled, amended, or added. Claims 1-24 are pending and under consideration. Reconsideration is respectfully requested.

REJECTION UNDER 35 U.S.C. §102

At page 1 of the Office Action, claims 1-24 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,351,838 issued to Amelia. The reasons for the rejection are set forth in the Office Action and therefore not repeated. This rejection is traversed and reconsideration is respectfully requested.

In sum, the Applicants respectfully submit that the Examiner has failed to establish a prima facie case of anticipation. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Manual of Patent Examination Procedure*, §2131 (quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)).

Regarding claim 1, the rejection is traversed as the Office Action fails to show how Amelia teaches or suggests:

- determining a number of the storage blocks to be used as data blocks and a number of the storage blocks to be used as parity blocks in a total number of storage blocks of the disk drives;

- forming a three-dimensional block matrix of virtual data blocks corresponding to the determined number of the storage blocks to be used as the data blocks on Cartesian coordinates (X, Y, Z);

- allocating virtual parity blocks to block planes related to the X, Y and Z-coordinates of the three-dimensional block matrix, respectively;

- allocating the virtual data blocks and the virtual parity blocks to the storage blocks of the disk drives, respectively;

- calculating parity information based upon data bits respectively stored in the storage blocks corresponding to the virtual data blocks of every block plane; and

- storing the calculated parity information in the storage blocks corresponding to the virtual parity blocks for every block plane, respectively.

The Applicants respectfully submit that the Office Action fails to establish a prima facie case of anticipation in that the Examiner has failed to point out how Amelia teaches or suggests each and every element of the claim.

As an example, the Examiner cites Amelia for teaching the forming operation. The Applicants concede that Amelia does mention a three-dimensional parity protection system. As illustrated in FIG. 2 of Amelia, the system includes three two-dimensional planes, each containing conventional data storage drives and parity protection drives. *Amelia*, col. 10, lines 12-16. Amelia also mentions that

each of the flat plane arrays 55, 57 and 59 are similar to the two-dimensional system shown in FIG. 1, and are connected similarly within each plane, but additionally, each flat plane has all of the drives connected to the other planes in a Z axis manner to create a three-dimensional parity protection system such as described above.

Amelia, col. 10, lines 18-24. However, Amelia does not mention virtual data blocks. Nor does Amelia mention forming a three-dimensional block matrix of virtual data blocks. Accordingly, the Applicants respectfully submit that Amelia cannot be fairly relied upon for teaching or suggesting "forming a three-dimensional block matrix of virtual data blocks corresponding to the determined number of the storage blocks to be used as the data blocks on Cartesian coordinates (X, Y, Z)," as recited in claim 1.

Similarly, regarding claims 13, 19, 22 and 23, the rejection is traversed as the Office Action fails to point out how Amelia teaches or suggests:

a programmed computer processor associating storage blocks of the disk drives to a virtual three-dimensional block matrix of virtual data blocks with virtual parity blocks allocated to each virtual data block plane, and controlling data input/output to/from the disk drives (claim 13);

a controller in communication with the host computer and the RAID, and controlling the RAID operations according to a process of associating storage blocks of the disk drives to a virtual three-dimensional block matrix of virtual data blocks with virtual parity blocks allocated to each virtual data block plane (claim 19);

allocating storage blocks of disk drives according to a virtual three-dimensional block matrix of virtual data blocks and virtual parity block planes corresponding to each virtual data block plane to store data and parity information in the storage blocks of the disk drives; and

using the virtual parity plane and the corresponding virtual data block plane to recover any number of error blocks in the corresponding allocated storage blocks (claim 22); and

a programmed computer processor associating storage blocks of the disk drives to a virtual three-dimensional block matrix of virtual data blocks with virtual error information blocks allocated to each virtual data block plane, and recovering any number of error blocks in the storage blocks according to the error information blocks corresponding to each virtual data block plane (claim 23).

As noted above, Amelia fails to mention virtual data blocks. Nor does Amelia mention a virtual three-dimensional block matrix of virtual data blocks. Accordingly, the Applicants respectfully submit that Amelia cannot be fairly relied upon for teaching or suggesting the above recited features.

Regarding claim 24, the rejection is traversed as the Office Action fails to point out how Amelia teaches or suggests:

a programmed computer processor recovering three or more error blocks of the storage block per one parity group calculated for error recovery.

The Applicants respectfully submit that the Office Action fails to establish a prima facie case of anticipation in that the Examiner has failed to show how Amelia teaches or suggests the programmed computer processor, as recited. The Applicants have not been able to find in the cited sections of Amelia any mention of recovering three or more error blocks of a storage block per one parity group. Accordingly, the Applicants respectfully submit that Amelia cannot fairly be relied upon for teaching or suggesting "a programmed computer processor recovering three or more error blocks of the storage block per one parity group calculated for error recovery", as recited in claim 24.

The Applicants respectfully submit that since Amelia fails to teach or suggest all of the features of claims 1, 13, 19, 22, 23 and 24, these claims are allowable over Amelia. Thus, withdrawal of the 102 rejection is respectfully requested.

Regarding the rejection of claims 2-12, 14-18, and 20-21, these claims depend directly or indirectly on one of independent claims 1, 13 and 19, and are therefore believed to be allowable for at least the reasons noted above.

CONCLUSION

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. And further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

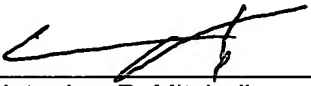
If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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